[0015] FIG. **3***a* is a cross-sectional view of a touch-sensitive LCD panel according to another embodiment of the present invention;

[0016] FIG. **4** is an exploded perspective view of the touch-sensitive LCD panel according to the embodiment of the present invention;

[0017] FIGS. **5** and **6** show that the voltage V_x and V_y of the touch-sensitive LCD panel are measured according to the embodiment of the present invention;

[0018] FIG. **7** shows that the voltage V_x and V_y of the touch-sensitive LCD panel are calculated according to the embodiment of the present invention;

[0019] FIG. **8** is a partial plan view of a TFT substrate according to the embodiment of the present invention;

[0020] FIG. **9** is a partial plan view of a TFT substrate according to an alternative embodiment of the present invention;

[0021] FIG. **10** is a partial plan view of a TFT substrate according to another embodiment of the present invention;

[0022] FIG. **11** is a partial plan view of a TFT substrate according to a further embodiment of the present invention;

[0023] FIG. **12** is a partial cross-sectional view of a TFT substrate according to a further embodiment of the present invention;

[0024] FIG. **13** is a flow diagram showing a method for calculating a coordinate of a touch position according to an embodiment of the present invention;

[0025] FIG. **14** is a flow diagram showing a method for manufacturing a TFT substrate according to an embodiment of the present invention; and

[0026] FIG. **15** is a flow diagram showing a method for manufacturing a CF substrate according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0027] Referring to FIG. **3**, it depicts a touch-sensitive liquid crystal display (LCD) panel **100**, e.g. an in-cell touch-sensitive panel. The touch-sensitive LCD panel **100** includes a thin film transistor (TFT) substrate **112**, a color filter (CF) substrate **114** and a liquid crystal (LC) layer **140**. The liquid crystal layer **140** is disposed between the TFT substrate **112** and the CF substrate **114**. The TFT substrate **112** includes a transparent substrate **120**, an electrode layer **124**, a net-shaped readout circuit (e.g. a net-shaped metallic lines **125**) and a first insulating layer **126**. The electrode layer **124** is formed above the transparent substrate **120**. The net-shaped metallic lines **125** are also formed above the transparent substrate **120**. The first insulating layer **126** is adapted to cover the electrode layer **124** and the first insulating layer **126**.

[0028] Referring to FIG. **4**, the net-shaped metallic lines **125** includes M widthwise readout lines (e.g. widthwise metallic lines **152**) and N lengthwise readout lines (e.g. lengthwise metallic lines **154**), wherein M and N are integers and more than two. The widthwise metallic lines **152** are electrically connected to the lengthwise metallic lines **154**. In this embodiment, the widthwise metallic lines **152** and the lengthwise metallic lines **154** can have M×N−4 connections **156** arranged in array manner. In other words, the widthwise metallic lines **152** and the lengthwise metallic lines **154** can have no connection arranged at corners of the net-shaped metallic lines **125**. In another embodiment, the widthwise metallic lines **152** and the lengthwise metallic lines **154** can also have M×N connections **156** arranged in array manner. A plurality of conductive pads **158** arranged in array manner are electrically connected to the net-shaped metallic lines **125**, and arranged to be adjacent to the connections **156**.

[0029] Referring to FIG. **3** again, in this embodiment, the CF substrate **114** is opposite to the TFT substrate **112** and includes a transparent substrate **130**, a plurality of black matrixes **137**, a plurality of color filters **135**, a plurality of spacers **142**, a plurality of protrudent portions **134** and a transparent electrode **138**. The black matrixes **137** are disposed on the transparent substrate **130**. The color filters **135** are disposed on the transparent substrate **130** and the black matrixes **137**, wherein the color filter **135** located on the black matrix **137** is formed to a protrusion **139**. The spacers **142** are disposed on the protrusions **139** of the color filter **135** for keep the first pre-determined gap G**1** between the TFT substrate **112** and the CF substrate **114**. The protrudent portions **134** are disposed on the black matrixes **137**, wherein there is a height difference H defined between top surfaces **142***a* of the spacers **142** and top surfaces **134***a* of the protrudent portions **134**. The spacers **142** and the protrudent portions **134** can be made of same material by same manufacturing processes. The protrudent portions **134** are corresponding to the conductive pads **158**, and there is the second gap G**2** located between the protrudent portions **134** and the conductive pads **158**. The protrudent portions **134** are made of nonconductive material. The transparent electrode **138** covers the transparent substrate **130**, the black matrixes **137**, the color filters **135**, the spacers **142** and the protrudent portions **134**. In addition, the arrangement density of the conductive pads **158** depends on design requirement, and further the arrangement density of the protrudent portions **134** are corresponding to that of the conductive pads **158**. However, it is not necessary that the arrangement density of the spacers **142** is corresponding to that of the conductive pads **158**. Thus, some of the spacers **142** are adjacent to the protrudent portions **134**, and it is not necessary that the others of the spacers **142** are adjacent to the protrudent portions **134**.

[0030] Referring to FIG. **3***a*, in another embodiment, the TFT substrate **112** further includes a pad layer **143**, which is formed between the transparent substrate **120** and the spacers **142**. The pad layer **143** is simultaneously formed during the manufacturing processes of scan lines and data lines. The pad layer **143** causes the spacers **142** to increase the gap between the TFT substrate **112** and the CF substrate **114** to be G**1'**, and increases the gap between the protrudent portions **134** and the conductive pads **158** to be G**2'**. In other words, the gap between the protrudent portions **134** and the conductive pads **158** can be adjusted by the thickness of the pad layer **143** so as to fulfill the best touch-sensitive effect.

[0031] Referring to FIGS. **5** and **6**, in this embodiment, the transparent electrode **138** of the CF substrate **114** and the net-shaped metallic lines **125** of the TFT substrate **112** are considered as upper conductive layer **104** and lower conductive layer **102** of a resistance type touch-sensitive panel. The principle of the resistance type touch-sensitive panel is that the lower conductive layer **102** controls two conductive lines parallel to X axis and two conductive lines parallel to Y axis (i.e. four metallic lines **102***a*, **102***b*, **102***c*, **102***d* located around the lower conductive layer **102**), and the upper conductive layer **104** responsibly transmits the voltage V_x of X-axis and the voltage V_y of Y-axis during touching. In this embodiment, the transparent electrode **138** is an uniform conductive layer, and thus the transparent electrode **138** can responsibly transmit the voltage when the transparent elec-